INSECT SURVEY ENGELMANN SPRUCE STANDS
PAYETTE NATIONAL FOREST
1950

by
T. T. Terrell

During the period of July 17 to 28, 1950, a survey was made by the Coeur d'Alene Laboratory in five Engelmann spruce areas of the Payette National Forest to determine the status of the Engelmann spruce beetle infestation. This infestation was first reported in 1947. A 1948 survey gave evidence of an epidemic infestation which at that time was confined mostly to windfalls, broken topped trees and stubs. Control measures were recommended and a project organized early in the summer of 1949 to treat the infestation on all areas. Forest fires which were very severe on the Payette Forest during the summer greatly interfered with control work. Because of this interference the job was not completed before the summer flight of insects took place. However, control work was conducted from time to time during the summer with most of the areas being covered by control crews twice. Several categories of infested trees, windfalls, broken topped trees, stubs and road side logs were treated. This infested material could also be subdivided into three dated classifications:

1947 attacked, having a small amount of brood around the base and some hibernating adults.

1948 attacked, having brood in the boles in several stages most of which emerged during the summer (except where treated before emergence).

1949 attacked, at the time of control these were the newly attacked trees that were infested from hibernating adults from the 1947 trees, the last emerging brood from the bases of 1947 trees, and emerging brood from the 1948 attacked trees.

The infested trees were found and marked more by extensive scouting than by systematic intensive spotting. It can be assumed that because of the intermittent nature of the actual work the control measures would not be as effective as if carried through in one period by well organized crews.

The Engelmann spruce beetle is not a difficult insect to control and will respond well to control measures. The 1949 control work on this forest can be considered as successful in most areas. The following table will show the data obtained on the survey. The Pearl Creek drainage is not included as a 3½ percent coverage of the 925 acres of type showed no new infestation.

Insect Survey of Engelmann Spruce Beetle in
Engelmann Spruce Stands, Fayette National Forest
1950

Area	Acres	Acres Strip	Attacked Trees Per Acre 1948	1949	1950	Total Infested Trees	1949 & 1950	% Sur.
Hazzard Cr.	1,658	46	.02	.04	.0	66	.04	3
Hard Creek	2,565	111	.04	.11	.09	513	.20	4
Goose Lake	1,055	37	.03	.06	.06	127	.12	3½
Brundage	3,750	152	.07	.17	.18	1,312	.35	4
	9,028	346				2,018		

The above table is misleading in that it seems to depreciate the benefits which we feel were derived from control, and indicates an increasing infestation. This is not the case, as the 1948 and 1949 attacked trees are those that were missed by last year's control operation. Our survey data indicates that less than 40 percent of last season's infested material was found and treated. For the different units the percent of treated trees are Hazzard Creek 62%, Hard Creek 11 percent, Goose Lake 62%, and Brundage 40 percent. Although most unfortunate it is not difficult to explain this condition. Of course infested spruce trees are most difficult to find, and requires a careful, close examination of all trees. However, it is believed that the unavoidable, intermittent program of control, with new crews, overlapping attacks, etc., was obviously the most important contributing factor.

The Hazzard, Hard, and Goose Lake areas are quite similar and are adjacent to each other. It was while the crews were working in these areas that the greatest interruptions in the work occurred. It is somewhat significant that in the Hard Creek area where the fewest number of trees were treated, that the heaviest 1950 infestation occurred. The Brundage area was treated late in the season, and at that time snow conditions made the 1949 attacked trees extremely difficult to find.

The characters of the infestation has changed from that of three years ago. It is typical of Engelmann spruce beetle infestations that they start with blow-downs, excessive numbers of road right-of-way logs and sometimes cull logs from logging operations. The infestation then goes into standing trees and continues for a few years, and is then usually brought under control by natural factors, providing a fresh supply of down material does not occur in the meantime. The amount of damage depends largely upon the severity of the beetle population that develops from original material and, of course, the duration of the subsequent infestation. Often the few years that these outbreaks last are sufficient to completely deplete the stand of all merchantable timber. This sequence is mentioned to help describe the existing infestation within

the areas above. This infestation evidently started its buildup in 1946 or 1947 in the down and broken top material mentioned before. It is now almost entirely in standing trees. It is believed that the infestation will now decline naturally in all the areas. However, in the Brundage unit and in a portion of the Hard Creek unit a considerable volumn of timber will be destroyed by the insects during this period of decline. There is always the danger too of new windfalls occurring which, with the presence of rather high spruce beetle population, would present a serious problem.

It is therefore recommended that control measures be undertaken in the entire Brundage unit and in approximately 600 acres of the Hard Creek unit. The acreage in the Hard Creek unit lies in Sections 25 and 26, T. 21N., R. 2E.. A map will be furnished to the Payette National Forest showing these areas in detail.

If control is undertaken it is further recommended that the work be conducted on an intensive basis; that combination spotting and treating crews be used to obtain an intensive 100 percent coverage. Because the newly attacked trees are so difficult to detect it is thought that the spotting crews should perhaps cover a strip less than a chain wide per man. It is also recommended that the work be delayed until early September as at that time the newly attacked trees will be more obvious. From the experience of the past season we also believe it advisable to complete the work before the fall snow storms. About the only evidence to guide spotters to newly attacked trees is the boring dust around the base of the tree. Snow makes it very difficult to find these trees.

It is felt that this infestation can now be cleaned up by thorough control this fall. The standing trees should be sprayed with an extra heavy dosage as was done last year and to a height of about 8 or 10 feet. Woodpeckers are now quite numerous in these areas and will virtually clean the infestation out of the upper boles during the winter.

Recommendations Approved
James C. Evenden
Entomologist in Charge
Forest Insect Laboratory

S
CONTROL
Insect

August 10, 1950

Mr. James C. Evenden
Forest Insect Laboratory
Coeur d'Alene, Idaho

Dear Mr. Evenden:

We were happy to receive your letter of August 3, 1950 and the copies of Mr. Terrell's report on the Payette Engelmann spruce survey. It comes at a very opportune time as you will note from other correspondence.

As you say the necessity for another year's work on this project is regrettable whatever the reasons, and we are wholly in agreement with your recommendation for 100% coverage of the infestation this fall.

There is only one thing about the report that is not clear. The tabulation of control work needed mentions trees only whereas in 1948 stubs, stumps, windfalls and tops were tallied in addition. Will the stubs, etc. be disregarded this year or are they included with the trees? It will help in planning the job and ordering supplies to know this.

Our estimate of cost for the job is about the same as yours and we will require funds in that amount from our Washington Office.

Your offer of help in training men for the project is greatly appreciated and we believe it will be most helpful to have a Bureau of Entomology and Plant Quarantine man on the job for as much time as one can be spared.

Very truly yours,

W. L. ROBB
Assistant Regional Forester

Paul A. Grossenbach

By

Forest Insect Laboratory
Coeur d'Alene, Idaho

August 3, 1950

Mr. W. L. Robb
Asst. Regional Forester
Forest Service Building
Ogden, Utah

Dear Mr. Robb:

We are enclosing a copy of Mr. Terrell's report of the recent survey of the Engelmann spruce areas of the McCall area of the Payette. An extra copy of this report, with this letter of transmittal, has been forwarded through channels to your Washington Office. A copy has also been sent to the Supervisor's office of the Payette National Forest.

Mr. Terrell and I discussed the recommendations for control as shown in this report prior to its preparation. We are in accord as to the recommendations and I trust it will be possible to carry them through as planned.

I am sorry about the missed trees, but under the circumstances of last season, I do not know how it could have been avoided. I hope, for many reasons, that similar conditions will not prevail this year.

You will note that Mr. Terrell has not included any control cost figures in his report. Our reason is that we believe Mr. Grossenbach is perhaps better qualified to estimate a cost figure than we are. However, we would like to give you our thinking on this question. As stated we are recommending a thorough 100 percent once-over in September, as the trees will be easier to spot at that time. We recommend a combination spotting and treating crew, made up as follows: 1 Chief Spotter, 4 Spotters and Treaters, and 1 Packer. This crew to cover a strip 3 chains wide. To the organization must be added a string layer, who can lay string lines for the two crews that we think will be necessary to complete the work before snow flies.

With this organization we would like to consider costs on an acreage covered or treated basis, rather than the cost per tree. With this infestation the major portion of each man day will be spent in spotting or searching for the infested trees. We then compute the cost of the project as follows:

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Area to be treated - 4,350 Acres

Acres covered per project man day - 10

Man days required 4,350 ÷ 10 = 435 Project Man Days

Cost of Project $20.00 X 435 = $8,700 ($9,000.00)

If this project is conducted representatives from this or Mr. Orr's laboratory will spend sufficient time with the crews to train all personnel in the techniques of the operation. Your comments relative to this letter and Mr. Terrell's report will be appreciated.

Sincerely yours,

James C. Evenden
Entomologist in Charge